



BETTER FRUIT—

DISEASE CONTROL

IN PRIVATE GARDENS

DURING the present world food shortage, fruit grown in private gardens is a great asset, and gardeners are urged to do everything possible to ensure bigger and better crops from their trees and bushes.

To achieve this, it is of paramount importance that pests and diseases, which in so many private gardens considerably reduce the value of the fruit crops, should be controlled.

The *minimum* spraying programme for carrying this out is indicated below. Special treatments for particular pests or diseases will well repay cost, and these are described in the relevant Advisory Leaflet (*see* list on p. 6).

Pruning

With all fruit, except plums, all dead branches and twigs should be cut out in autumn before spraying and burned. Dead wood is often infected with disease; if left on the tree, it is not only harmful, but leads to waste of spray fluid. All dead fruits, e.g., "mummified" apples and plums, should be picked off and burned; otherwise they serve as centres for the spread of diseases.

Plums should not be pruned until May or June, as trees pruned in

autumn are liable to contract Silver Leaf disease.

Spraying

Spraying is by far the most important operation, and a few simple rules must be observed to ensure success.

(1) The proportions recommended for making up the sprays must not be altered. Stronger mixtures may do more harm than good; weaker ones may not be effective.

(2) All sprays must be thoroughly mixed and strained before use. A piece of coarse muslin makes a good strainer.

(3) Spraying must be done very thoroughly. When using tar oil or D.N.C. sprays every part of the tree or bush must be drenched, especially the twigs. When lime sulphur is used, the young foliage or flower buds must be well sprayed.

(4) Spraying should not be carried out in the rain, when rain is likely, or during frosty or windy weather.

(5) When using *tar oil* or *D.N.C. sprays*, it is necessary to cover up any vegetable crops under or near the trees to prevent damage; for instance, spring cabbages are spoiled by the spray. Failing anything better,

covering with newspaper affords reasonable protection.

(6) *Lime-sulphur* spray does little harm to most vegetable crops, *except lettuce, which should be adequately protected.*

(7) Flowering plants and hedges may be damaged; if accidentally sprayed, they should be thoroughly washed with the garden hose before the spray has time to dry.

(8) The quantity of spray to be used varies according to the size of the tree or bush. For fruit trees the following table shows the average quantities required:

<i>Diameter of Spread of Tree</i>	<i>No. of Gallons of Dilute Wash per Tree</i>
10-12 ft. ..	1 gal.
12-15 ft. ..	1½ "
15-18 ft. ..	2¼ "
18-21 ft. ..	3 "
21-24 ft. ..	4 "

For blackcurrants, gooseberries and other bush fruit, 1 gal. of spray will suffice for 1-10 bushes, according to size.

(9) Spraying equipment must be washed after use.

(10) No more spray than is required for a day's work should be made up at a time.

APPLES AND PEARS

First Spray

Between the *beginning of December* and the *end of January*, the trees should be sprayed once with a tar oil spray mixed in the proportion of ½ pint to 1 gal. of water. In some districts, spraying can safely be carried out at a later date, but local advice should be sought on this point. This spraying cleans up the trees and destroys many insect pests.

Emulsions of di-nitro-ortho-cresol and petroleum oil (known as D.N.C. winter washes) may be used in place of the tar oil spray and can be applied as late as the first half of March. They should be mixed with water according to the maker's directions.

Petroleum oil emulsions are also effective for certain purposes. Growers who wish to use winter washes other than tar oil wash and are unfamiliar with them, should first obtain advice.

Second Spray

Many varieties of apples and pears suffer severely from Scab (which produces black spots on the fruit) unless they are sprayed. The use of lime sulphur, ½ pint to 3 gal. water, is recommended.

This spray should be applied to apples preferably *when in the "pink bud" stage* (Fig. 1). Where pears and apples are grown together in the

same garden, however, *both* may be sprayed when the pears are in the "white bud" stage (Fig. 2), so as to save the trouble of spraying twice within only a short interval of time. The "white bud" stage in pears corresponds to the "pink bud" stage in apples, but the unopened flower is white instead of pink.

Notes. Do *not* apply lime-sulphur spray to the following varieties of apples: Beauty of Bath, Stirling Castle, and St. Cecilia. It is not worth while spraying Charles Ross and Lord Derby, since they suffer little from Scab. If you cannot identify the varieties of apples in your garden, take the risk and spray all the trees.

In *north-western* areas, lime-sulphur spray should be used at one-half the strength, viz., ¼ pint to 3 gal. of water.

A single lime-sulphur spray gives a fair control of Scab, but for a more complete control a further spraying after the flower petals have fallen is desirable. This second spray, however, is likely to cause injury to some varieties, and if it has not been used before, advice should be sought. Similarly "post-blossom" sprays are required for certain pests, e.g., Apple Sawfly and Red Spider, but unless the grower is familiar with the necessary treatments he should obtain advice



Fig. 1.—PINK BUD STAGE OF APPLE.
(Reproduced by courtesy of the East Malling Research Station)



Fig. 2.—WHITE BUD STAGE OF PEAR.
(Reproduced by courtesy of the East Malling Research Station)



Fig. 3.—STAGE
AT WHICH
BLACK-
CURRANTS
SHOULD BE
SPRAYED TO
CONTROL
BIG BUD.

before giving a post-blossom spray for these pests.

Banding

(1) **Codling Moth.** Apples, and to a less extent pears, are often badly attacked by the caterpillars of the Codling Moth, which are responsible for the maggoty fruit found at picking time. In private gardens, the pest is best dealt with by banding the trees towards the end of June or early July with a band of folded sacking or corrugated paper. The band should be 4-6 in. wide, and be tied round the trunk a foot or so below the lowest branches. A second band may be tied on lower down. The bands must be removed and burned after the fruit has been gathered, care being taken

to destroy all maggots on the trees under the bands.

(2) **Winter Moths.** The foliage of apple and other fruit trees may be seriously damaged by the caterpillars of these moths. To prevent this, band the trunks of the trees in early October as follows. Tie firmly round the trunk 3-5 ft. from the ground, a piece of grease-proof paper 8 in. wide and apply to the paper a layer of "grease-banding" compound, so as to form an unbroken ring about 6 ins. wide; the compound should be purchased ready for use—some preparations are stated to be suitable for application direct to the bark. The females of the moths have no wings, and so cannot reach the branches to lay their eggs.

PLUMS AND DAMSONS

One Spray Only

Between the *beginning of December* and the *middle of January* plum and damson trees should be sprayed once with the tar oil or D.N.C. spray recommended for apples. *On no account should spraying be delayed after the end of January, or the crops may be seriously reduced.*

Notes. When plum trees are grown on walls, the date of spraying must

be decided by the condition of the buds; usually, spraying should be completed *before the end of December.*

If Fruit Tree Red Spider is prevalent, a spray of $\frac{1}{2}$ pint of lime-sulphur to 3 gal. of water should be applied after the flower petals have fallen.

Banding

For Winter Moths, grease-band as for apple trees.

BLACKCURRANTS AND GOOSEBERRIES

First Spray

Between the *beginning of December* and the *middle of January* for gooseberries, and up to as late as the *end of January* for blackcurrants, the bushes should be sprayed with the tar oil or D.N.C. wash recommended for apples and pears. By choosing a date between early December and mid-January, it is possible to spray at the same time apples, pears, plums, blackcurrants and gooseberries.

Second Spray

Blackcurrants only. "Big Bud" (a disease caused by the Blackcurrant Mite) is often prevalent in gardens. It can be treated by spraying with $\frac{1}{2}$ pint of lime-sulphur to 3 gal. of water when the leaves are about the size of a shilling and when the flower buds

show as miniature bunches of grapes (Fig. 3).

Note: American Gooseberry Mildew, etc. The most serious disease from which gooseberries suffer is American Gooseberry Mildew, while both gooseberries and currants are attacked by Sawfly and Magpie Moth caterpillars. The Mildew may be controlled by spraying with lime-sulphur, but as certain varieties of gooseberry are very susceptible to damage from lime-sulphur, spraying should only be carried out under advice unless the grower is already familiar with the treatment. The caterpillars do not occur sufficiently regularly to justify routine spraying, but when they appear they may easily be controlled by spraying with the Derris wash described below for raspberries.

RASPBERRIES

Maggots (the grubs of the Raspberry Beetle) are the most serious pests of raspberries, but the damage they cause may be controlled by spraying or dusting with a proprietary Derris or Lonchocarpus insecticide about *three weeks after the fall of the flower petals*, i.e., just when

the earliest berries are turning pink. The maker's directions should be carefully followed when preparing the spray.

Loganberries may be treated in the same way and at the same time as the raspberries.

SPRAYING APPARATUS

The main types suitable for small gardens are:

For Trees up to 10 ft. in height

Syringe or Stirrup and Bucket Type. The syringe should preferably

be double-acting and fitted with a suction hose pipe to minimize labour, but any form of syringe can be used provided that every twig of the trees can be reached. The bucket pump is somewhat like that used for A.R.P.

purposes and usually requires two persons, one to pump and the other to guide the spray.

For Trees over 10 ft. in height

Barrow Type. These sprayers are mounted on wheels and are complete with strainers and other essentials. This type of sprayer is much more powerful than the syringe and bucket

types, and is preferable for treating big trees.

The sprayers mentioned are the simplest types for use in small gardens, but any sprayer which gives a good forceful spray is suitable. Knapsack machines, for instance, are quite suitable for treating gooseberries and currants; they will also do good work on small apple, pear and plum trees.

TECHNICAL ADVICE

The following Advisory Leaflets* should also be consulted:—

INSECT AND OTHER PESTS			No.		No.
Red Spider	..	..	10	Woolly Aphis	.. 187
Winter Moths	..	..	11	Gooseberry Red Spider	.. 305
Apple Sawfly	..	..	13	INJURIOUS FUNGI:	
Blackcurrant Mite ("Big Bud")	..	..	27	Apple and Pear Canker	.. 100
Gooseberry Sawfly	..	..	30	Brown Rot of Apples	.. 155
Codling Moth	..	..	42	Die-Back Disease of Gooseberries	204
Magpie Moth	..	..	65	Apple and Pear Scab	.. 245
Apple Sucker	..	..	96	Silver Leaf Disease	.. 246
Apple Aphides	..	..	106	Brown Rot and Allied Diseases	
Fruit Tree Capsids	..	..	154	of Plum	.. 248
Raspberry Beetle	..	..	164	American Gooseberry Mildew	273

Advice may also be obtained (a) in urban areas from the Horticultural Committee at the Local Authority's offices, or (b) where no such committee exists and in other than urban areas, from the Agricultural Organizer at the County Council offices.

Proprietary brands of tar oil winter washes, petroleum oil washes, lime-sulphur washes and Derris and Lonchocarpus insecticides that have received official approval are on the market. Approval is indicated on the containers by the mark shown here.

The other types of washes mentioned in this leaflet have not yet (April, 1946) been dealt with under the scheme for official approval.



* Any four of the Advisory Leaflets may be obtained free and post free from the Ministry. Copies in excess of four should be purchased from H.M. Stationery Office, York House, Kingsway, London, W.C.2, or through a bookseller, price 1d. each (2d. by post) or 9d. per dozen (11d. by post).

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